DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed on 3/23/2009.

2. Claims 1-9 and 11-14 have been amended by the applicant.

3. Claim 10 has been cancelled.

4. Claims 15-20 have been added.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Kocovsky on June 8, 2009.

Amend the claims as follows:

Claim 13: In line 1 after the word "readable" insert the word "storage". In line 2 delete the word "carrying" and insert the phrase "for storing".

Allowable Subject Matter

Claims 1-9 and 11-20 are allowed. The following is an examiner's statement of reasons for allowance:

In regards to claim 1, the prior art, Argiro and Kaufman fail to teach traversing along each ray through at least a plurality of ray positions within the volume, selecting one of a plurality of rendering algorithms and/or rendering parameters, in dependence on the ray position, the selected one of the plurality of rendering algorithms and/or rendering parameters changing with the ray position, for each of the plurality of ray positions calculating a contribution to a corresponding pixel value based on at least one voxel value within a predetermined range of the ray position using the selected one of the rendering algorithms and/or rendering parameters for each of the ray positions, therefore claims 1-5 are allowable.

In regards to claim 6, the prior art, Argiro and Kaufman fail to teach traversing along the ray through at least a plurality of ray positions within the volume under control of a protocol that determines a rendering algorithm and/or rendering parameters in dependence on the ray position, and for each of the plurality of ray positions using the determined rendering algorithm/ parameters to calculate a contribution to a pixel value of the pixel based on at least one voxel value with a predetermined range of ray positions, wherein the protocol is rule-based: wherein a rule prescribes for each of the plurality of ray positions at least one processing action at least in dependence on processing results of ray position along the ray that already been processed wherein the processing action includes at least one of the following: jumping forward or backward along a ray to a particular ray position, and resuming processing from that position, switching a stepping direction along a ray between forward and backward as seen from the viewpoint, changing a step size that determines a next ray position with respect to a current ray position in the stepping direction, changing a 3-dimensional direction of a ray starting from a particular position, switching to another rendering algorithm, adapting rendering parameters for

controlling the rendering algorithm, switching to another feature detection method, which determines the type of information that is going to be visualized by the rendering algorithm, therefore claims 6-9, 11 and 12 are allowable.

In regards to claim 13, the prior art, Argiro and Kaufman fail to teach from a memory which stores a plurality of rendering algorithms/parameters, selecting a subset of the rendering algorithm/parameters in accordance with an anatomical region depicted by the 3D volume, casting a ray through each pixel of the 2D image and into the 3D volume, stepping along the ray through a plurality of ray positions within the volume under control of a protocol that selects one of the subset of rendering algorithms/parameters to be implemented in dependence on the ray position, and for each of the plurality of ray positions using the selected rendering algorithm/parameter to calculate a contribution to a pixel value of the pixel corresponding to the ray based on at least one voxel value within a predetermined range of the ray position wherein a plurality of different rendering algorithms/parameters are used to generate the pixel values of the 2D image from the voxels of the 3D volume, therefore claims 13 is allowable.

In regards to claim 14, the prior art, Argiro and Kaufman fail to teach stepping along the ray to each of a plurality of ray positions within the volume under control of a protocol that selects one of a plurality of rendering algorithms/parameters in dependence on (1) the ray position and (2) the anatomical region of the patient represented by the ray position and (3) a medical or clinical situation for each of the plurality of ray positions using the selected one of the plurality of rendering algorithms/parameters to calculate the contribution to the pixel value of the pixel of the 2D image that corresponds to the ray, and at least one of displaying and storing the 2D image, therefore claims 14-20 are allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed 3/23/09 have been fully considered but they are not persuasive.

The previous 35 U.S.C. 101 rejections of claims 13 and 14 provided in the previous Non-Final office action dated 12/23/08 have been withdrawn due to amendments to the claims which provide statutory subject matter and comply with the requirements of 35 U.S.C. 101.

Applicant's arguments with regards to claims 1-9 and 13-20 are persuasive, and claims have been indicated allowable in the above office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAID BROOME whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Said Broome/
Examiner, Art Unit 2628

/Ulka Chauhan/

Supervisory Patent Examiner, Art Unit 2628